11Mbps Wireless LAN Card

User's Manual

Jameco Part Number 215618

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Chapter 1 Introduction

This Wireless LAN Card is an IEEE 802.11b Wireless LAN USB adapter for both desktop and laptop PCs. It allows your computer to connect to a wireless network and to share resource, such as files or printers without being bound to the network wires. Operating in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the Wireless LAN Card transfers data at speeds up to 11Mbps. Both Ad-Hoc and Infrastructure mode are supported. For network security concern, 64/128-bit Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any 802.11b networks.

This User's Manual contains information on how to install and configure your Wireless LAN Card. Your Wireless LAN Card will allow you to connect your computer to other Wireless LAN Card equipped computers.

Wireless LAN Basics

This section conations some Wireless LAN basics to help you better understand how the product work together to create a wireless network.

Local Area Network (LAN)

Simply put, a LAN is a network that exists in a relatively limited area. A network is two or more computers connected together sharing files and peripheral devices such as printers.

The Wireless LAN Card allows you to interact with other computers without having to run cables normally associated with networks. This lets you move your computer around while staying connected to your network.

There are two ways to use the Wireless LAN Card. One way is to connect directly to one or more Wireless LAN Card equipped computers, forming an Ad Hoc wireless network. The second way is to connect to an Access Point that gives you access to an existing wired LAN, forming an Infrastructure wireless network.

Ad Hoc Network

The Ad Hoc network offers peer to peer connections between workstations, allowing communication between computers within range that have an 802.11b DSSS compatible PC

card installed. A wireless Ad Hoc network can also access a wired LAN's TCP/IP service (such as e-mail and the Internet) by using a TCP/IP software router on an Ethernet equipped PowerBook or notebook.

Infrastructure Network

The infrastructure network uses an access point (or several access points) as a gateway, linking the wireless network to a wired LAN. As a result, portable workstations or desktops on your wireless network have access to all of the features of your wired LAN including e-mail, Internet access, network printers and files server.

Roaming

Multiple Access Points can be installed to extend the wireless service coverage area for seamless wireless access. Within an extended service area, all Access Points and wireless clients must have the same Service Set Identity (SSID). Roaming among different Access Points is controlled automatically to maintain the wireless connectivity at all times.

Chapter 2 Installing the Wireless LAN Card

This chapter describes the system requirement and Wireless LAN Card Status LEDs. In addition, we will guide you through the Wireless LAN Card installation as outline below:

Step 1 Installing the software utility using the provided Software Utility CD.

Step 2 Installing the hardware. (Driver installation is auto-processed upon hardware detection.)

After completing the steps above, if you need to set up the TCP/IP protocol to communicate with your network, refer to “Appendix C Setting Up TCP/IP” on page 47 for details.

System Requirements

To use the Wireless LAN Card, your computer must meet the following minimum requirements:

- Windows 98(SE)/Me /2000
- 16 MB of RAM, additional memory recommended
- Standard USB port

Wireless LAN Card Status LEDs

The two LEDs on the Wireless LAN Card indicate connection status and data transfer operation status, as described below:

LED	Color	State	Description
Power	Red	On	The adapter is plugged into the USB port of your computer.
Activity	Green	Blinking	Transmission mode. The faster the LED blinks, the higher the data exchange rate.

Installing the Wireless LAN Card Software

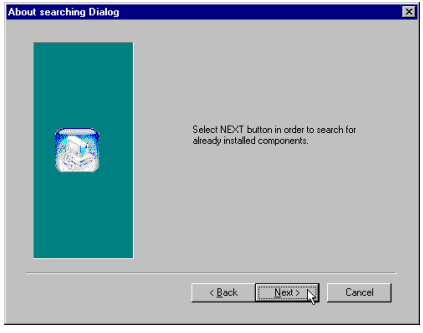
Caution: Do not connect the Wireless LAN Card device to your computer before installing its software. If this happens, the Windows PnP function will detect the USB device and issue a dialog box requesting its driver. Click **Cancel** to quit the wizard.

Insert the provided Software Utility CD into your CD-ROM driver and follow these steps:

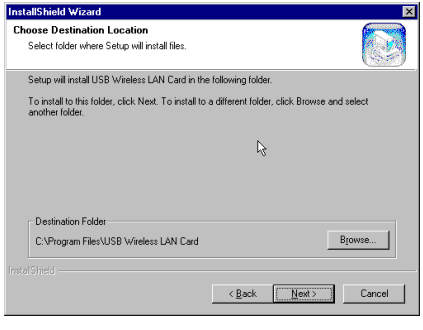
1. Close all Windows programs that are running.
2. Run **Setup.exe** from the **D**:**Utility** folder of the Wireless LAN Card Installation CD-ROM where **D** is the drive letter. When the following screen pops up, click **Next**.

InstallShield Wizard
Welcome to the InstallShield Wizard for USB Wireless LAN Card
The InstallShield® Wizard will install USB Wireless LAN Card on your computer. To continue, click Next.
< Back
Next >
Cancel

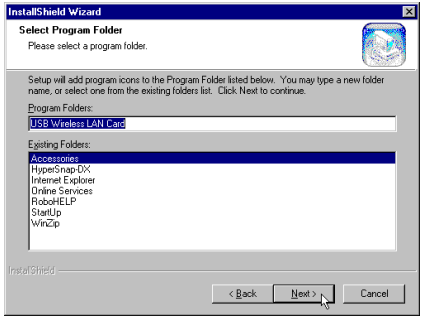
3. Click **Next** to continue.



4. To install the software to the default destination folder, click **Next**. If you are to install to a different folder, click **Browse**, select another folder, and then click **Next**.

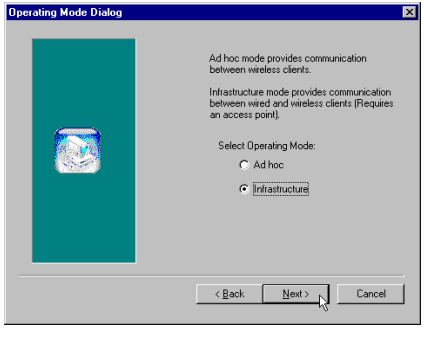

InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install USB Wireless LAN Card in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\USB Wireless LAN Card
Browse...
InstallShield
< Back
Next >
Cancel

5. Click **Next** to continue.



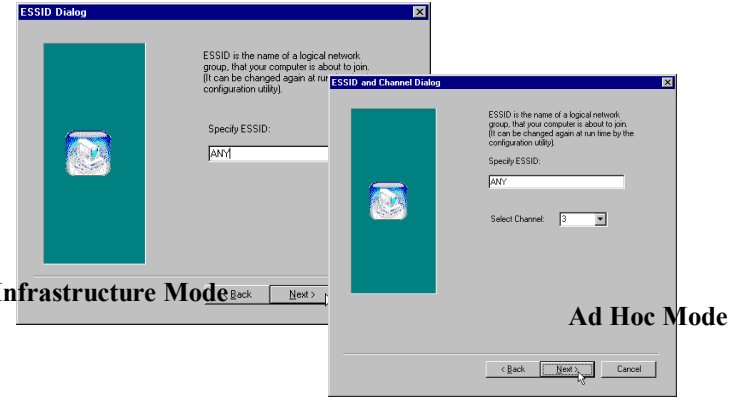
You can change your Operating Mode later by the USB Wireless LAN Monitor Utility. See "Chapter 3 USB Wireless LAN Monitor Utility" on page 15 for details.

6. Select the Operating Mode (**Ad Hoc** or **Infrastructure**) in which your wireless client will operate, and then click **Next**.


Operating Mode Dialog
Ad hoc mode provides communication between wireless clients.
Infrastructure mode provides communication between wired and wireless clients (Requires an access point).
Select Operating Mode:
Ad hoc
Infrastructure
< Back
Next >
Cancel

7. Depending on the Operating Mode you specified on Step 6, different **ESSID Dialog** box appears. In the **Specify ESSID** box, enter the Service Set ID name. For Ad hoc mode only, in **Select Channel** box, select a channel number as your operation radio channel. Then click **Next**.

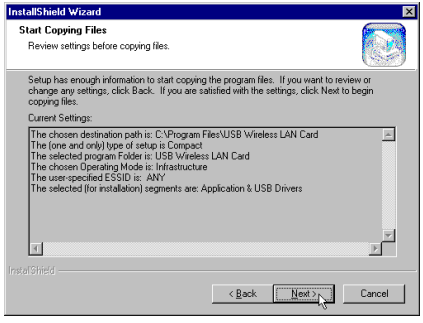
You can change your settings later by the USB Wireless LAN Monitor Utility. See "Chapter 3 USB Wireless LAN Monitor Utility" on page 15 for details.


ESSID Dialog
ESSID is the name of a logical network group, that your computer is about to join. (It can be changed again at run configuration utility).
Specify ESSID:
ANY
Back
Next >
ESSID and Channel Dialog
ESSID is the name of a logical network group, that your computer is about to join. (It can be changed again at run time by the configuration utility).
Specify ESSID:
ANY
Select Channel:
3
< Back
Next >
Cancel

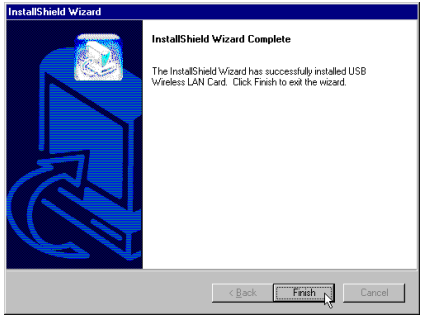
Infrastructure Mode

Ad Hoc Mode

8. If the settings listed are correct, click **Next** to begin copying files. Otherwise, click **Back** to modify your settings.


InstallShield Wizard
Start Copying Files
Review settings before copying files.
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
The chosen destination path is: C:\Program Files\USB Wireless LAN Card
The (one and only) type of setup is Compact
The selected program Folder is: USB Wireless LAN Card
The chosen Operating Mode is: Infrastructure
The user-specified ESSID is: ANY
The selected (for installation) segments are: Application & USB Drivers
InstallShield
< Back
Next >
Cancel

9. After Windows OS copies the Setup files from the Wireless LAN Card Installation CD-ROM, click **Finish**.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed USB Wireless LAN Card. Click Finish to exit the wizard.
< Back
Finish
Cancel

Installing the Hardware

The red LED on the Wireless LAN Card will light when the Wireless LAN Card is connected to your computer.

After installing the Wireless LAN Card Software, plug the Wireless LAN Card into your computer's USB port. The Wireless LAN Card is USB bus powered; no external power is required.

The Antenna on the Wireless LAN Card

The device comes with one powerful antenna. You can rotate the antenna from 0 to 180 degrees to adjust its range and the connection quality.

Note: Do not rotate the antenna more than 180 degrees, otherwise permanent damage may be caused.

For Windows 2000, you will not see **Digital Signature Not Found** message with the setting below:
Control Panel > **System** >**Hardware** > **Driver Signing** > **Ignore- Install the software anyway…**.

Upon hardware detection, Windows OS will install the driver for the card automatically.

Note:

1. For Windows 98(SE): If prompted, you need to insert your Windows 98(SE) installation CD to complete the driver installation.
2. For Windows 2000: If you are prompted with the **Digital Signature not Found** alarm message, just click **Yes** to ignore it and continue with the auto-installation. .

Note: If you need to set up the TCP/IP address or the Subnet Mask, refer to "Appendix C Setting Up TCP/IP" on page 47 for details.

Now you are down with the installation procedure. Select **Start** > **Programs > USB Wireless LAN Card** > **Configuration & Monitor Utility**. You should be able to see the **USB Wireless LAN Monitor Utility** icon appearing on the right side of the taskbar. Proceed to next chapter to configure or fine-tune your Wireless LAN Card settings.

Chapter 3 USB Wireless LAN Monitor Utility

USB Wireless LAN Monitor

If the utility is not launched, manually start the monitor by selecting **Start** > **Programs > USB Wireless LAN Card**, > **Configuration & Monitor Utility**.

The Wireless LAN card uses the **USB Wireless LAN Monitor Utility** for both configuration and monitoring. The utility is launched automatically with its icon located on the right side of the taskbar. Right-clicking the icon displays the context menu as shown opposite:

By the color of the monitor icon, you can determine the connection status as below:

Red	**Not Linked**	Computer is not connected to Access Point
Blue	**Linked**	Computer joined to an Access Point.

Note: In Ad-Hoc mode, the **USB Wireless LAN Monitor** icon is always in blue color no matter the wireless client connects to other wireless clients or not.

USB Wireless LAN Monitor Utility

To start the utility program, double-click the icon or select **About…** from its context menu. The **USB Wireless LAN Monitor Utility** screen pops up with six tabs: **Status**, **Statistics**, **Site Survey**, **Encryption**, **Advance** and **Version**. Please see the appropriate section which describes each tab item.

Status

Status function allows you to re-configure the Wireless LAN Card setting. Even though you have configured the settings during driver and utility installation, it is possible that you want to change your operating mode between Infrastructure or Ad-Hoc mode and fine-tune other settings.

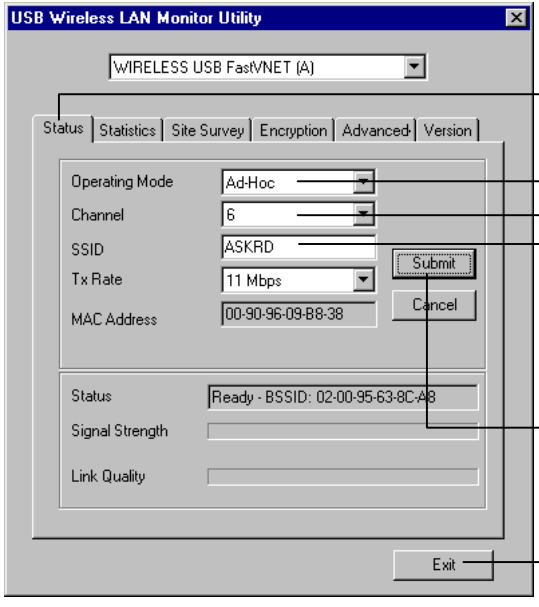
You can connect your computer to a network in one of the following two ways. Refer to sequential sections for configuration:

Ad Hoc	Connecting to other Wireless LAN Card equipped computers, forming a wireless network.
Infrastructure	Connecting to a wired/wireless network through an Access Point.

Connecting to Other Wireless LAN Card (Ad-Hoc Mode)

1. In the taskbar, double-click the **USB Wireless LAN Monitor** icon to display the **USB Wireless LAN Monitor Utility** dialog box.
2. Click the **Status** tab.
3. In the **Operating Mode** list, select **Ad-Hoc**.
4. In the **Channel** list, select the Channel Number which you want to use.
5. In the **SSID** list, type the Service Set ID (SSID) of the Wireless LAN group. All wireless clients must use the same SSID in order to communicate with each other.
6. Click **Submit**.
7. Click **Exit** if you wish to exit the utility.

Note: The MAC Address indicates the MAC address of your computer.

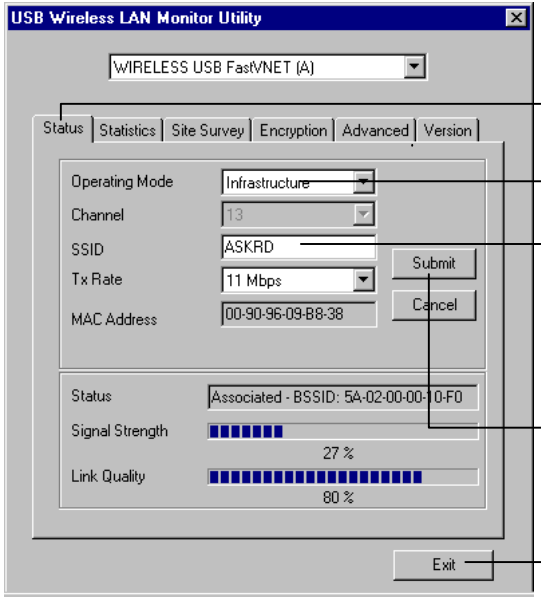


1. Open the **USB Wireless LAN Monitor Utility**.
2. Click the **Status** tab.
3. Select **Ad-Hoc** mode.
4. Select the **Channel** number.
5. Type the **SSID** name of the Wireless LAN group
6. Click **Submit**.
7. Click **Exit** if you wish o exit the utility.

Figure 3-1 Ad-Hoc Configuration

Connecting to Access Points (Infrastructure Mode)

1. In the taskbar, double-click the **USB Wireless LAN Monitor** icon to display the **USB Wireless LAN Monitor Utility** dialog box.
2. Click the **Status** tab.
3. In the **Operating Mode** list, click **Infrastructure**.
4. In the **SSID** list, type SSID name of the Access Point. The wireless client must use the same SSID as the Access Point in order to communicate with other computers via the Access Point.
5. Click **Submit**. If the connection is successful, you should be able to find your computer on the Network Neighborhood in Windows Explorer.
6. Click **Exit** if you wish to exit the utility.



1. Open the **USB Wireless LAN Monitor Utility**.
2. Click the **Status** tab.
3. Select **Infrastucture** mode.
4. Type the **SSID** name of the Wireless LAN group
5. Click **Submit**.
6. Click **Exit** if you wish o exit the utility.

Figure 3-2 Indrastructure Mode Configuration

Checking Link Quality (Infrastructure Mode Only)

If you are in Ad-Hoc mode, the **Signal Strength** and **Link Quality** fields are grayed-out.

To check the link quality of the connection when in Infrastructure mode,, double-click the **USB Wireless LAN Monitor** icon on the taskbar to display the **USB Wireless LAN Monitor Utility** dialog box. Then click the **Status** tab. The status is displayed at the lower part of the panel.

Status: Indicates the Access Point your Wireless LAN Card associated with. If no Access Point is connected, current status, such as scanning, authenticating, is displayed.

Signal Strength: Displayed as percentages using active progress indicators that change as the network radio signal fluctuates.

Link Quality: Link Quality categories are defined as follows:

Link Quality	Range (%)
Poor	0-29
Fair	30-59
Good	60-89
Excellent	90-100

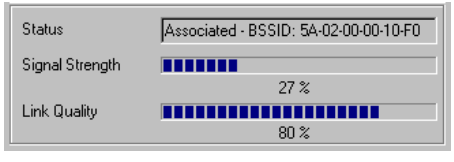


Figure 3-3 Indrastructure Mode Link Status

Statistics

Statistics feature allows you to view the available statistic information (Data packets, Management Packets and Rejected packets). **Tx** indicates data is being transmitted whereas **Rx** indicates data is being received. To renew or update the statistics, click the **Reset** button.

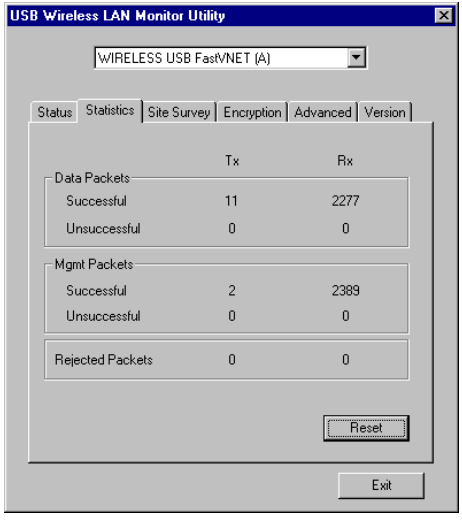


Figure 3-4 USB Wireless LAN Monitor Utility – Statistics

Site Survey

Site Survey function scans the wireless network searching for available Access Points and wireless stations within the range of the card. Available stations are listed with the following information:

BSSID: Basic Service Set ID. It is actually the MAC address of the Access Point/Wireless station. It can be used to identify the stations when they have the same SSID.

SSID: Service Set ID. Displays the current SSID of the Access Point/Wireless station.

Signal: Shows the signal strength ratio. The higher the ration is, the more powerful the signal received by your Wireless LAN Card. It helps you identify the quality network operation.

Channel: The operating radio channel number.

Encryption: Displays if encryption is enabled or disabled on the Access Point/Wireless station.

BSS: Basic Service Set. Indicates whether the operating mode is Infrastructure (Access Point) or Ad-Hoc (Wireless station).

Re-Scan: This button allows you to update the list.

Connecting to Desired Site By Site Survey Utility

If you want to connect to any of the Access Point(s) and Ad-Hoc Station(s) listed, double-click on your choice (on the **BSSID** field). The utility will take you back to the **Status** screen showing the parameters of the connection newly established.

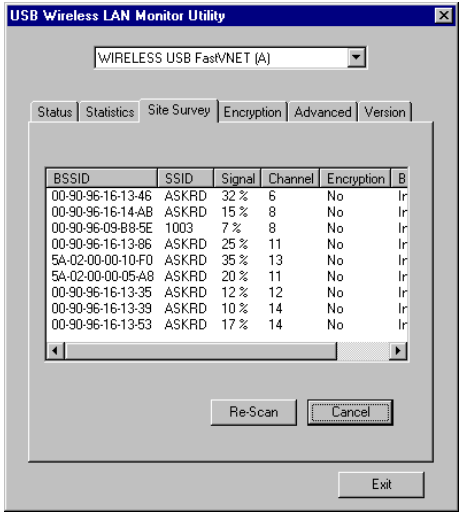

USB Wireless LAN Monitor Utility
WIRELESS USB FastVNET (A)
Status
Statistics
Site Survey
Encryption
Advanced
Version
BSSID SSID Signal Channel Encryption B
00-90-96-16-13-46 ASKRD 32 % 6 No Ir
00-90-96-16-14-AB ASKRD 15 % 8 No Ir
00-90-96-09-B8-5E 1003 7 % 8 No Ir
00-90-96-16-13-86 ASKRD 25 % 11 No Ir
5A-02-00-00-10-F0 ASKRD 35 % 13 No Ir
5A-02-00-00-05-A8 ASKRD 20 % 11 No Ir
00-90-96-16-13-35 ASKRD 12 % 12 No Ir
00-90-96-16-13-39 ASKRD 10 % 14 No Ir
00-90-96-16-13-53 ASKRD 17 % 14 No Ir
Re-Scan
Cancel
Exit

Figure 3-5 USB Wireless LAN Monitor Utility – Site Survey

Encryption

Encryption technology is used to enhance wireless media security. Your encryption settings must match the those used by the Access Points or wireless stations in your network, or your computer will be unable to communicate with others of your network.

To enable encryption, do the following:

1. Select the **Encryption** tab from the **USB Wireless LAN Monitor Utility**.
2. Select your encryption type from **64 Bit** or **128 Bit**.
3. In the **Key #1-4** fields, enter the encryption keys. Note that the key must be in the form of Hex format; only digits 0-9 and letters A-F are valid. The four keys, including the one selected as **Default Key**, are used to decrypt the data you receive.
4. In the **Default Key** box, select one of the four keys to encrypt the data you are going to transmit.
5. Select encryption **Mode** from **Mandatory** and **Optional**.

   Mandatory: WEP encryption is required to establish connection with other wireless stations. Both your computer and other stations need to use WEP encryption to establish a communication. This requirement is in line with the IEEE 802.11b standard.

   Optional: Your station can communicate with every other station regardless if WEP is enable or disabled in the other station.

6. Select the **Authentication Type** from **Open System** and **Shared Key**.

   Your authentication type must be the same as those on the Access Point/wireless client with which you want to associate.

7. To have the new settings take effect, click the **Submit**. Then click **Exit** to exit the utility.

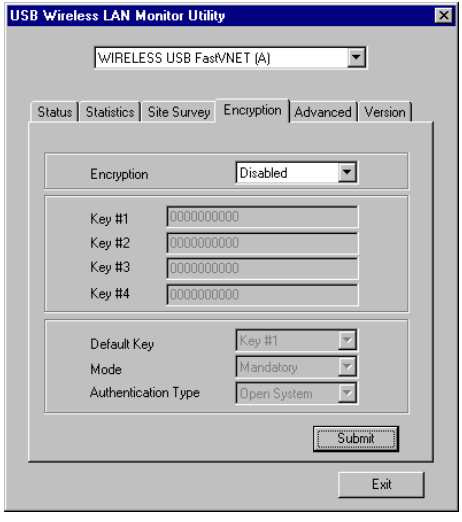


Figure 3-6 USB Wireless LAN Monitor Utility – Encryption

Advanced

Advanced features allows you to change advanced configuration settings: **Fragmentation Threshold** and **RTS Threshold**.

Preamble Type: The Wireless LAN Card has an auto-detection feature therefore it automatically selects the **Preamble Type** depending on the Access Point/Ad-Hoc Station preamble type.

Fragmentation Threshold: The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented and at what size. On an 802.11 wireless LAN, packets exceed the fragmentation threshold are fragmented, i.e., split into, smaller units suitable for the circuit size. Packets smaller than the specified fragmentation threshold value are not fragmented.

RTS Threshold:. When set (in bytes), it specifies the packet size beyond which the Wireless LAN Card invokes its RTS/CTS mechanism. Packets that exceed the specified RTS threshold trigger the RTS/CTS mechanism. The NIC transmits smaller packets without using RTS/CTS.

Changing the Fragmentation/RTS Threshold

By default, the Fragmentation and RTS Threshold are disabled. To change the **Fragmentation/RTS Threshold** parameters, move the slide bar with your mouse and then use the right and left arrow keys of your keyboard to select an exact number in bytes.

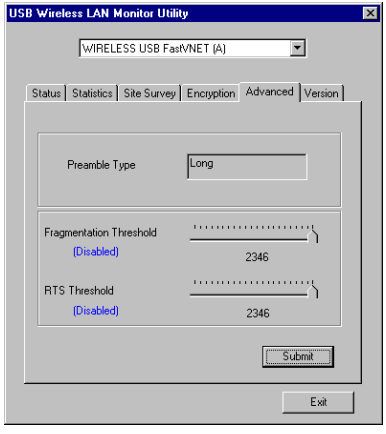


Figure 3-7 USB Wireless LAN Monitor Utility – Advanced

Version

Version tab displays the basic information about the device, including the Driver, Firmware and Application Version. Use the **Exit** button if you wish to exit the application.

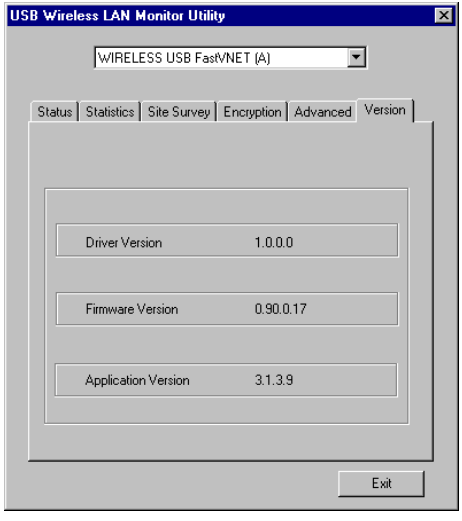


Figure 3-8 USB Wireless LAN Monitor Utility – Version

Chapter 4 Uninstalling the Wireless LAN Card

Should you need to uninstall the Wireless LAN Card and application software for any reason,, you should remove the hardware from your computer and then uninstall the associated software. Please proceed as follows.

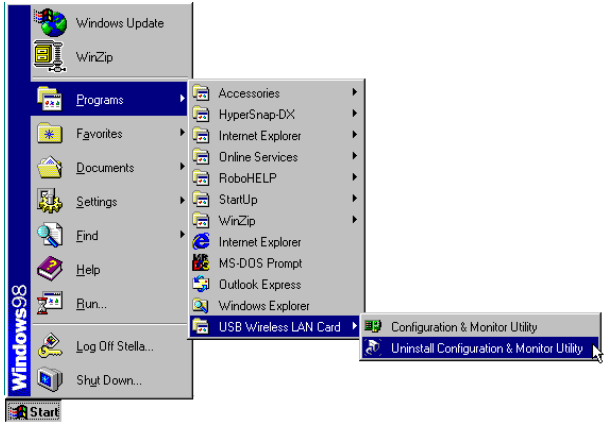
Removing the Wireless LAN Card

The Wireless LAN Card complies with the USB standard that allows devices to be plugged into and removed from the computer's USB port when the computer is power on.

Uninstalling the Wireless LAN Card Software

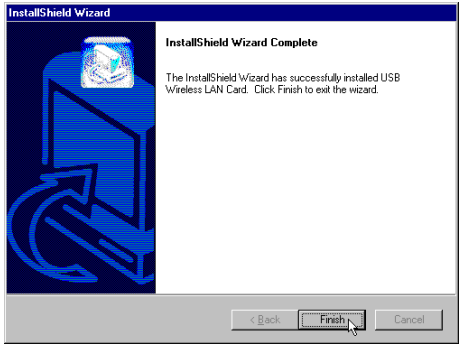
Make sure that you have removed the hardware before you proceed.

1. Close all programs that are currently running.
2. Click the Windows **Start** button, point to **Programs**, **USB Wireless LAN Card** and then click **Uninstall Configuration & Monitor Utility**.

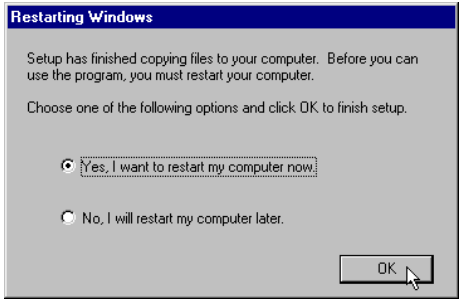


3. Click **OK** to proceed with the software removal procedure.

4. Click **Finish** to exit the wizard.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed USB Wireless LAN Card. Click Finish to exit the wizard.
< Back
Finish
Cancel

5. When prompted, click **OK** to restart your computer to complete the uninstallation.


Restarting Windows
Setup has finished copying files to your computer. Before you can use the program, you must restart your computer.
Choose one of the following options and click OK to finish setup.
Yes, I want to restart my computer now.
No, I will restart my computer later.
OK

Chapter 5 Updating the Device Driver

Periodically, you may need to upgrade the Wireless LAN Card's driver when a newer version is available. Check our website for information about the latest driver upgrades. When you have finished the download procedure, please follow as below to update the device driver.

1. Uninstall the Wireless LAN Card as described in Chapter 4. Follow the steps to remove the Wireless LAN Card and then uninstall the software.
2. Install the new driver you have downloaded. Refer to Chapter 2 for detailed instructions.

Once you finish installing the new driver, the updating is complete.

Chapter 6 Troubleshooting

Radio Interference

You may be able to eliminate any interference by trying the following:

- Reseat the Wireless LAN Card.
- Increase the distance between the wireless computers and the device causing the radio interference.
- Plug the computer equipped with the Wireless LAN Card into an outlet on a different branch circuit from that used by the affecting device.
- Consult the dealer or an experienced radio technician for help.
- Keep the computer with the Wireless LAN Card away from the microwave oven and large metal objects.

Card Not Detected

If the Wireless LAN Card is not detected by Windows, try the following:

- Make sure the Wireless LAN Card is properly inserted in the USB port.
- Make sure the USB port in your computer is working.
- Contact your dealer for additional testing if there is a hardware problem with the Wireless LAN Card.

Cannot Connect to Another Wireless LAN Card

If you cannot make a connection to another Wireless LAN Card from your computer, it could be due to one of the following reasons:

- Incorrect SSID. Make sure the SSID is the same for all computers that have a Wireless LAN Card.
- Changes are not being recognized by your computer. Restart your computer.
- If in Ad Hoc mode, make sure the **Log on to Windows NT domain** check box is not selected in the **Client for Microsoft Networks Properties** dialog box in the **Network Configuration** tab.
- Incorrect IP Address or Subnet Mask. Check these settings in the **TCP/IP Properties** dialog box in the **Network Configuration** tab.

Poor Link Quality

If the Link Quality display stays in the Poor range, it could be due to one of the following reasons:

- Radio interference.
- Distance between Wireless LAN Card and Access Point is too far. Decrease the distance between the Wireless LAN Card and Access Point (or another card).

Cannot Connect to Access Point

If you cannot make a connection to the Access Point, it could be due to one of the following reasons:

- Make sure the Wireless LAN Card and Access Point have no physical connection problems.
- Make sure the SSID for the Wireless LAN Card is set to "null" or is the same as the Access Point.
- Make sure the privacy type is the same as that of Access Point. Also, make sure the Default Key is the same for both computers.

Appendix A Limited Warranty

Wireless LAN Hardware

The seller warrants to the end user ("Customer") that this hardware product will be free from defects in workmanship and materials, under normal use and service, for 1 year from the date of purchase from the seller or its authorized reseller. The seller's sole obligation under this express warranty shall be, at the seller's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, The seller may, in its sole discretion, refund to the Customer the purchase price paid for the defective product. All products that are replaced will become the property of the seller. Replacement products may be new or reconditioned.

Wireless LAN Software

The seller warrants to Customer that each software program licensed from it , except as noted below, will perform in substantial conformance to its program specifications, for a period of 1 year from the date of purchase from the seller or its authorized reseller. The seller warrants the media containing software against failure during the warranty period. No updates are provided. The seller's sole obligation under this express warranty shall be, at the seller's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable seller published specifications. Customer assumes responsibility for the selection of the appropriate application programs and associated reference materials. The seller makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or software applications products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the seller software product documentation or specifications as being compatible, the seller will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a defect in the third party's product or from use of the software product not in accordance with the seller's published specifications or user manual.

Appendix B Regulatory Compliance

FCC Part 15 Declaration of Conformity (DoC)

The following equipment:

Product Name: Wireless LAN Card

is herewith confirmed to comply with the requirements of FCC Part 15 rules. The operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC Rules and Regulations - Part 15

Warning: This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the Federal Communications Commissions Rules and Regulation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Relocate your WLAN equipped laptop computer.
- Increase the separation between the WLAN equipped laptop computer and other electronics.
- Connect the WLAN equipped laptop computer into an outlet on a circuit different from that of other electronics.
- Consult the dealer or an experienced radio/TV technician for help.

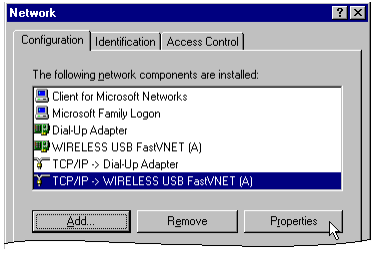
FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator & your body.

Appendix C Setting Up TCP/IP

This section contains instructions for configuring the TCP/IP protocol of the USB Wireless LAN Card. The IP address policy depends on your wireless network. You should configure your TCP/IP protocol as instructed by your network administrator.

1. On the taskbar, select **Start** > **Settings** > **Control Panel**, double-click the **Network** icon.
2. Click the **Configuration** tab of the **Network** dialog box.
3. In the network components list, click **TCP/IP ->WIRELESS USB FastVNET(A)**, and then click **Properties**.



For correct IP address information for your wireless LAN installation, contact your network administrator.

For more information on IP addresses, see the Network Working Group Specification RFC 1918 on the Internet.

4. On the **IP Address** tab, choose one of the methods as required:

   Option A: Click **Specify an IP address**.

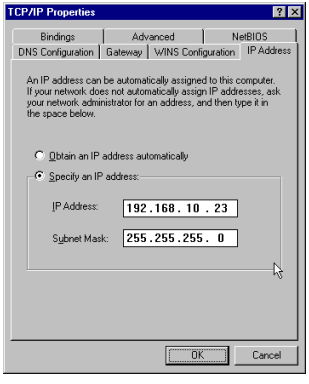
   In the **IP Address** box, enter a valid four-component IP address, either a public or private one as required. If private IP address is used, the following three blocks of IP addresses are available for private networks:

   10. 0 . 0. 0 — 10.255.255.255

   172. 16. 0. 0 — 172. 31.255.255

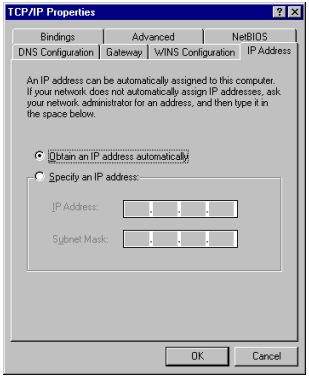
   192.168. 0. 0 — 192.168.255.255

   In the **Subnet Mask** box, enter a valid four-component IP address.



Option B: Select **Obtain an IP address automatically**.

An IP address will be automatically assigned to your computer.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

5. Click **OK** to return to **Network** dialog box and click **OK** again to finish configuration. If your TCP/IP properties have been modified, you will be prompted to restart your computer. Click **Yes** to have new settings take effect.

Appendix D Specification

* Specifications are subject to change with notice.

Software

Standards Compliance	• IEEE 802.11 / 802.11b Standard • USB 1.1 Compliant
Operation Modes	• Ad-hoc mode • Infrastructure mode
Security Features	• Support SSID network identification for security • Support 64-bit and 128-bit WEP Data Encryption and Decryption • Support Authentication: Open System, Shared Key

Monitor and Configuration	• Reliable and robust monitor and configuration utilities • Dynamic configuration • Network traffic statistics gathering • Clear LED Indicators for real time monitor current network status
Device Driver and Configuration Utility	• A USB NDIS 5.0 mini-port driver running on Windows 98(SE)/ME/2000 platforms • A USB monitor and configuration utility running on Windows 98(SE)/ME/2000 platforms

Hardware

Interface	• One 2.4GHz RF interface for Wireless LAN connection • One USB connector

Radio Characteristics	• Frequency Band: 2.400 ~ 2.4835 GHz ISM Band (subject to local regulations)
	• Spreading: Direct Sequence Spread Spectrum
	• Modulation
	  ➢ *CCK: 11Mbps and 5.5Mbps*
	  ➢ *DQPSK: 2Mbps*
	  ➢ *DBPSK: 1Mbps*
	• Number of Channels
	  ➢ *11 Channels (US, Canada)*
	  ➢ *13 Channels (Europe)*
	  ➢ *14 Channels (Japan)*
	• Channel Spacing: 5MHz
	• Data Rate: 11Mbps / 5.5Mbps / 2Mbps / 1Mbps

Radio Characteristics	• Antenna: One external on-board 3D antenna
	• Transmit Power: 12dBm (typical)
	• Receiver Sensitivity: -80dBm @ FER < 8%
	• Range Coverage
	  ➢ *Open Space: 300m – 600m*
	  ➢ *Indoor: 30m – 150m*

Power Requirement and Operation Environment Requirement	• Temperature
	  ➢ *Operating Temperature: 0°C to 55°C (32°F to 131°F)*
	  ➢ *Storage Temperature: -20°C to 80°C*
	• Humidity: 5% to 95% (non-condensing)
	• Power Consumption
	  ➢ *Receive mode: 322mA*
	  ➢ *Transmit mode:382 mA*
	  ➢ *Standby mode: TBD*
	  ➢ *Sleep mode: TBD*

LED Indicators (from left to right in front panel)	• Activity (Green) • Power (Red)
USB Specification	• USB 1.1 Compliant • USB Slave • Plug and Play • Hot Swapping
Physical	• **Dimensions**: 79.52mm (L) × 48.00mm (W) × 0.80mm (H)
Safety and Regulatory Approvals	• FCC • VCCI • CE • TELEC & JATE

Glossary

10BaseT An IEEE standard (802.3) for operating 10 Mbps Ethernet networks (LANs) with twisted pair cabling and a wiring hub.

Access Point An internetworking device that seamlessly connects wired and wireless networks. Access Points combined with a distributed system support the creation of multiple radio cells that enable roaming throughout a facility.

Ad Hoc A network composed solely of stations within mutual communication range of each other (no Access Point connected).

BSS *Basic Service Se*t. A set of stations controlled by a single coordination function.

Channel A medium used to pass protocol data units that can be used simultaneously in the same volume of space by other channels of the same physical layer, with an acceptably low frame error ratio due to mutual interference.

Encapsulated An Ethernet address mode that treats the entire Ethernet packet as a whole and places it inside an 802.11 frame along with a new header.

ESS *Extended Service Se*t. A set of one or more interconnected Basic Service Sets (BSSs) and integrated Local Area Networks (LANs) can be configured as an Extended Service Set.

Ethernet The most widely used medium access method, which is defined by the IEEE 802.3 standard. Ethernet is normally a shared media LAN; i.e., all the devices on the network segment share total bandwidth. Ethernet networks operate at 10Mbps using CSMA/CD to run over 10BaseT cables.

Gateway A network component that acts as an entrance to another network.

IEEE 802.11 The IEEE 802.xx is a set of specifications for LANs from the Institute of Electrical and Electronic Engineers (IEEE). Most wired networks conform to 802.3, the specification for CSMA/CD-based Ethernet networks or 802.5, the specification for token ring networks. 802.11 defines the standard for wireless LANs encompassing three incompatible (non-interoperable) technologies: Frequency Hopping Spread Spectrum (FHSS), Direct Sequence Spread Spectrum (DSSS), and Infrared. IEEE standards ensure interoperability between systems of the same type.

Infrastructure A wireless network centered about an Access Point. In this environment, the Access Point not only provides communication with the wired network but also mediates wireless network traffic in the immediate neighborhood.

IP *Internet Protocol*. The standard protocol within TCP/IP that defines the basic unit of information passed across an Internet connection by breaking down data messages into packets, routing and transporting the packets over network connections, then reassembling the packets at their destination. IP corresponds to the network layer in the ISO/OSI model.

IP Address An IP address is a 32-bit number that identifies each sender or receiver of information sent across the Internet. An IP address has two parts: the identifier of a particular network on the

Internet and an identifier of the particular device (which can be a server or a workstation) within that network.

ISP *Internet Service Provide*r. An organization that provides access to the Internet. Small ISPs provide service via modem and ISDN while the larger ones also offer private line hookups (T1, fractional T1, etc.).

LAN *Local Area Networ*k. A communications network that serves users within a defined geographical area. The benefits include the sharing of Internet access, files, and equipment, such as printers and storage devices. Special network cabling (10BaseT) is often used to connect the PCs together.

NAT *Network Address Translatio*n. The translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the internal network and the other is the external. The internal network then appears as one entity to the outside world.

Radio Frequency *R*F, Terms: GHz, MHz, Hz —The international unit for measuring frequency is Hertz (Hz), equivalent to the older unit of cycles per second. One megahertz (MHz) is one Million-Hertz. One giga hertz (GHz) is one Billion-Hertz. The standard U.S. electrical power frequency is 60 Hz, the AM broadcast radio frequency band is 0.55–1.6 MHz, the FM broadcast radio frequency band is 88–108 MHz, and wireless 802.11 LANs operate at 2.4GHz.

SSID *Service Set I*D. A group name shared by every member of a wireless network. Only client PCs with the same SSID are allowed to establish a connection.

Subnet Mask A value that defines whether your computer communicates only within your LAN or communicates outside of your LAN, where it is routed out to the rest of the Internet. A Subnet Mask that has the same first three components (for example, 255.255.255.0) is the routing pattern for a Class C address.

TCP *Transmission Control Protoco*l. The standard transport level protocol that provides the full duplex, stream service on which many applications' protocols depend. TCP allows a process on one machine to send a stream of data to a process on another. Software implementing TCP usually resides in the operating system and uses the IP to transmit information across the network.

WEP *Wired Equivalent Privac*y. The optional cryptographic confidentiality algorithm specified by 802.11. The algorithm is being used to provide data confidentiality that is subjectively equivalent to the confidentiality of a wired LAN medium that does not employ cryptographic techniques to enhance privacy..